Claims

1. A method of case-hardening a stainless steel article by means of gas including carbon and/or nitrogen, whereby carbon and/or nitrogen atoms diffuse through the surface of the article, the case-hardening is carried out below a temperature at which carbides and/or nitrides are produced, the method including activating the surface of the article, applying a top layer on the activated surface to prevent repassivation, the top layer includes metal which is catalytic to the decomposition of the gas, characterised in that the metal is one or more of the metals Ni, Ru, Co or Pd.

2. A method according to claim 1, wherein the case-hardening is a nitriding process which is carried out with a nitrogen-containing gas below a temperature at which nitrides are produced, preferably below approximately 450°C.

3. A method according to claim 1, wherein the case-hardening is carburizing with a carbon-containing gas, preferably CO.

4. A method according to claim 3, wherein carburizing is carried out below a temperature at which carbides are produced, preferably below approximately 550°C, more preferably below approximately 510°C.

5. A method according to any of the preceding claims, wherein the top layer is a nickel layer.

6. A method according to claim 5, wherein the maximum average thickness of the nickel layer is 300 nanometer, preferably 200 nanometer.

7. A method according to claim 5 or 6, wherein the nickel layer is applied by a chemical or electrolytical plating process, e.g. by electro-plating in a Wood's nickel bath.

8. A method according to any of the preceding claims, wherein the article is of austenitic stainless steel.

9. A method according to any of the preceding claims, wherein the catalytic metal layer is only applied to parts of the surface of the stainless steel article.